ANNUAL REPORT FY13
Habitat Assessment Funded Research

Project Title:
Integrating spatial habitat and fisheries effort data to improve abundance estimates of west coast groundfish

Principal Investigator(s):
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Goals:

We will develop and compare alternate methods for estimating west coast groundfish abundance. We hope to understand the value of incorporating habitat information for the precision and consistency of abundance estimates. We are particularly interested in developing methods for understanding how fishing effort may interact with habitat to affect abundance of groundfish.

Approach:

We are developing a set of Bayesian delta-generalized linear mixed models (delta-GLMMs) and applying them to the West Coast trawl survey. We are comparing the results from out new approach with traditional stock assessment methods. We received funding during the summer of 2013 and hired a graduate student from the University of Washington on September 1, 2013. This student will be the point person for the implementation of the methods looking at the effect of fishing on abundance.

Work Completed:

As we only hired a student this month, we have made minimal progress on developing methods for understanding the effect of fishing on abundance. However, we have completed a comparison of the habitat delta-GLMM with traditional (non-spatial) stock assessment methods for a single species (darkblotched rockfish, *Sebastes crameri*).

Applications:

Our project has not reached the point at which applications can be realistically expected. We will work toward broader knowledge and use of our models over the course of FY14.

Publications/Presentations/Webpages:

- Shelton, A.O., J.T. Thorson, E.J. Ward, B.E. Feist. *In review.* Spatial, semi-parametric models improve estimates of species abundance and distribution. Canadian Journal of Fisheries and Aquatic Sciences.